ICF-M300S

SERVICE MANUAL

AEP Model

SPECIFICATIONS

	FM	SW	MW
Frequency range	87.5–108 MHz	5.8–6.4 MHz (49 meter band)	531–1,602 kHz
Tuning interval	50 kHz	5 kHz	9 kHz

Antennas	FW/SW: Telescopic antenna MW: Built-in ferrite bar antenna
Speaker	Approx. 7.7 cm (3 1/8 inches) dia.
Power output	320 mW (at 10% harmonic distortion)
Output	Earphone jack (minijack) for 8-ohm earphone
Power requirements	4.5 V DC Three R6 (size AA) batteries DC IN 4.5 V jack accepts: Sony AC-D3M AC power adaptor (optional) Sony DCC-127A car battery cord (optional) for use with 12 V car battery
Battery life	Approx. 18 hours of listening for four hours a day at a normal volume using Sony batteries SUM-3 (NS)
Dimensions	Approx. 32 × 101 × 181 mm (w/h/d) (1 5/16 × 4 × 7 1/4 inches) not incl. projecting parts and controls
Weight	Approx. 490 g (17.3 oz) incl. batteries
Supplied accessory	Earphone (1)

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MICROFILM

FM/SW/MW 3 BAND PLL SYNTHESIZED RECEIVER

SONY®

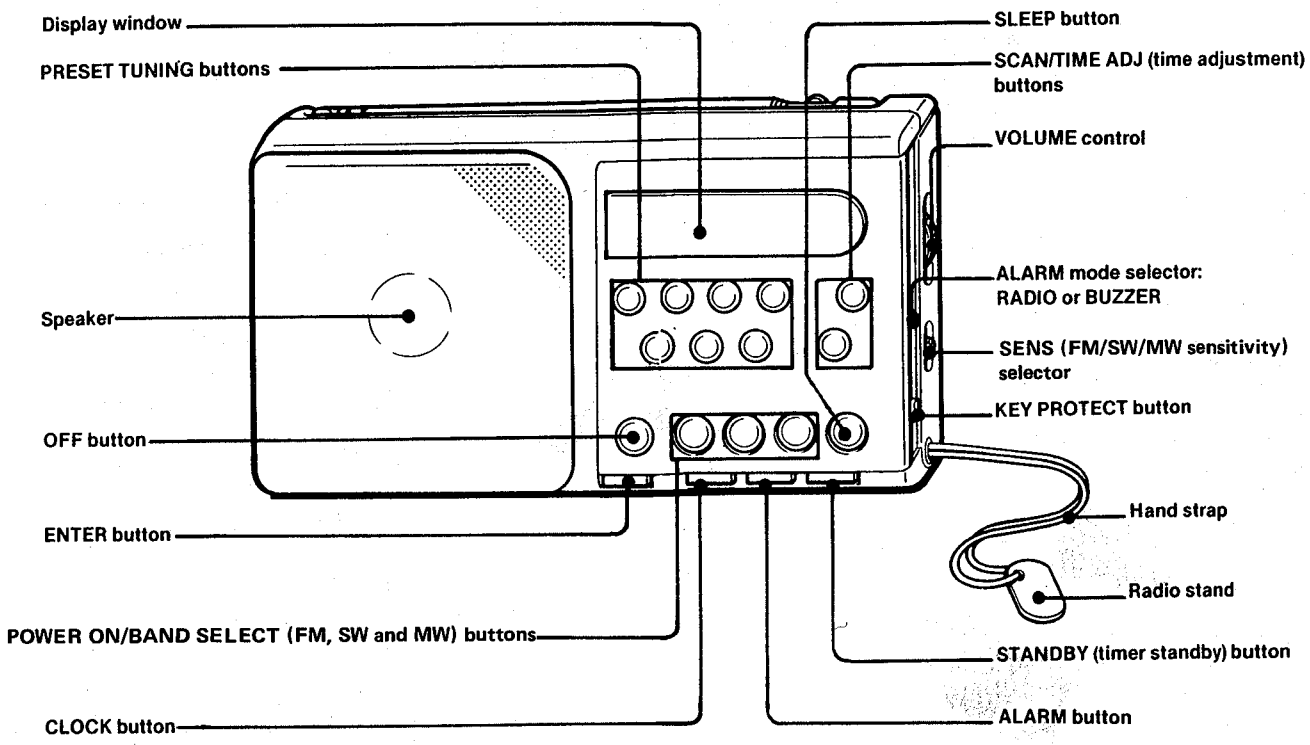
SECTION 1
GENERAL

Features

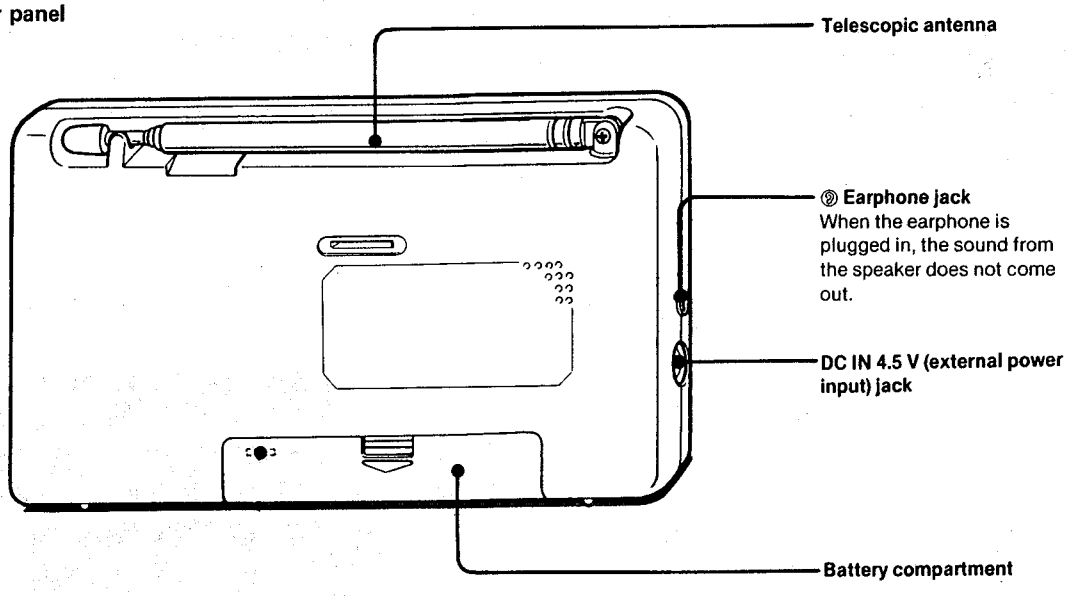
- A quartz-controlled PLL (Phase Locked Loop) synthesizer system using a microcomputer for easy pinpoint tuning. The tuned-in frequency is digitally displayed.
- Up to 7 stations in each band can be preset.
- Two alarm modes available: radio or buzzer
- Digital clock built-in. The current time and alarm time are digitally displayed.
- A sleep timer turns the radio off automatically at the preset time.

Location and Function of Controls

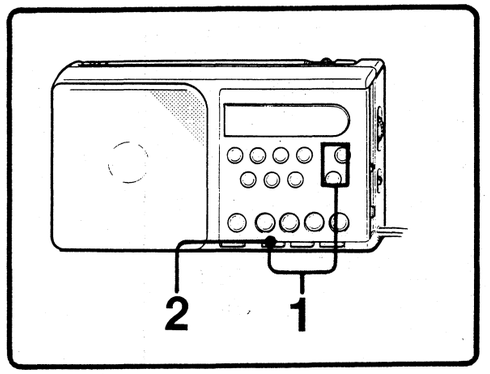
Front panel



Rear panel


Telescopic antenna
⑨ Earphone jack
When the earphone is plugged in, the sound from the speaker does not come out.
DC IN 4.5 V (external power input) jack
Battery compartment

To Set the Current Time



1 While keeping CLOCK pressed, press TIME ADJ + or – button repeatedly.
When the + or – button is kept pressed, the digits are rapidly advanced.

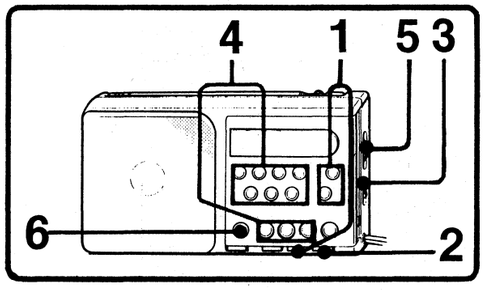
2 Release CLOCK.
The clock will begin to operate.

- The current time can be set even when the radio is ON.
- The current time is displayed when the radio is OFF.

Zero second adjustment

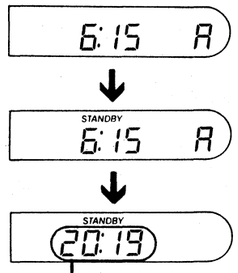
Example: to set to 7:15
1 Set the time to 7:15 and keep the CLOCK button pressed.
2 Release CLOCK simultaneously with the telephone time signal.

To Set the Alarm Time



RADIO ALARM (6 steps)	BUZZER ALARM (3 steps)
1 Set the alarm time. While keeping ALARM pressed, press TIME ADJ buttons + or –.	
2 Press STANDBY so that the STANDBY indicator is displayed. The unit will be in the alarm standby mode.	
3 Set the ALARM mode selector to RADIO.	**3 Set the ALARM mode selector to BUZZER.** The buzzer alarm comes on even when the radio is ON. The radio will be turned off.
4 Tune in the desired station.	
5 Adjust volume.	
6 Press OFF.	

Example: To set to 6:15



Current time or tuned-in station frequency

The radio or buzzer alarm will automatically come on at the preset time, and turn itself off after about 60 minutes.

To stop the radio or buzzer alarm
Press the OFF button. The alarm sound will come on again at the same time next day.

To cancel the alarm before the preset time
Press the STANDBY button so that the STANDBY indicator disappears.

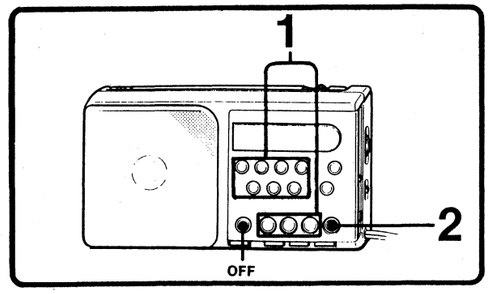
To prevent accidental release of the standby mode
Press the KEY PROTECT button so that the ⊶ mark is displayed.
The alarm will come on at the preset time and the "key protect" function will be released.

To check the alarm preset time
Press the ALARM button.
When the button is released, the previous display will resume.

Notes

- Be sure not to forget pressing the STANDBY button, or the alarm sound will not come on.
- The buzzer alarm level is fixed, and has no relation to the VOLUME control setting.

To Turn Off the Radio Automatically at the Preset Time—sleep timer



1 Tune in the desired station.

2 Select the sleep timer 90, 60 or 30 minutes, by pressing SLEEP.

The radio will be turned off automatically after a preset time.

Examp
minute

To turn off the radio before the preset tim
Press the OFF button.

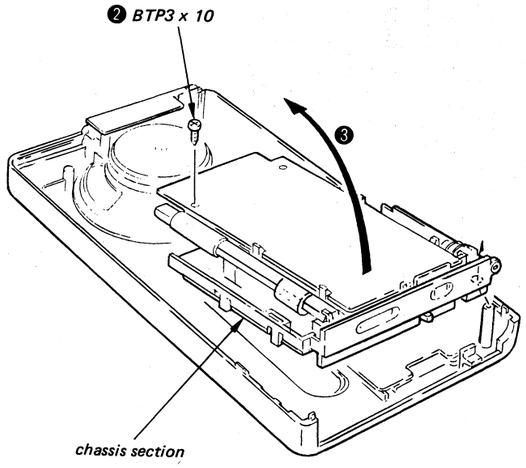
To prevent accidental release of the sleep
Press the KEY PROTECT button so that th
displayed.
The radio will be turned off at the preset tin
protect" function will be released.

SECTION 2
DISASSEMBLY

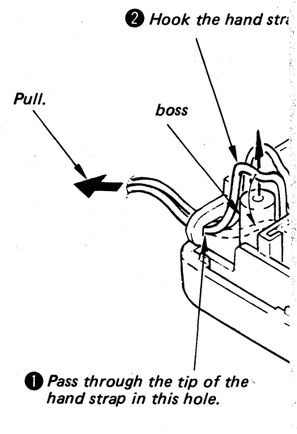
Note: Follow the disassembly procedure in the numerical order given.

CHASSIS SECTION REMOVAL

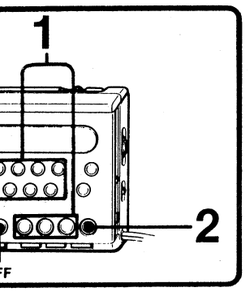
❶ *Remove the hand strap.*



– Hand Strap Installation –



dio Automatically at the Preset Time—sleep timer

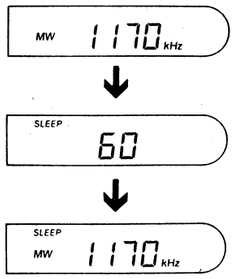


1 Tune in the desired station.

2 Select the sleep timer 90, 60 or 30 minutes, by pressing SLEEP.

The radio will be turned off automatically after a preset time.

Example: to set the timer to 60 minutes



To turn off the radio before the preset time
Press the OFF button.

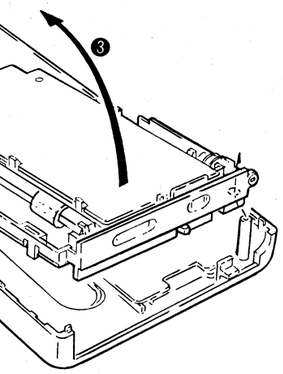
To prevent accidental release of the sleep timer
Press the KEY PROTECT button so that the ⊶ mark is displayed.
The radio will be turned off at the preset time and the "key protect" function will be released.

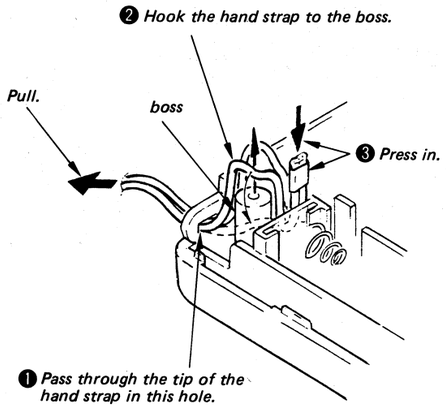
SECTION 2
DISASSEMBLY

procedure in the numerical order given.

OVAL

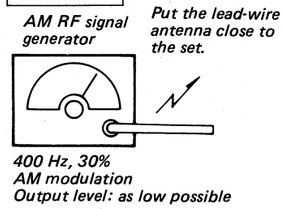
– Hand Strap Installation –



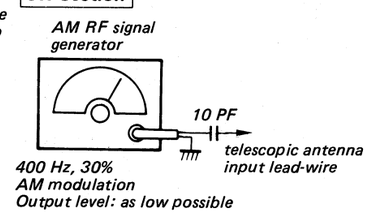


SECTION 3
ADJUSTMENTS

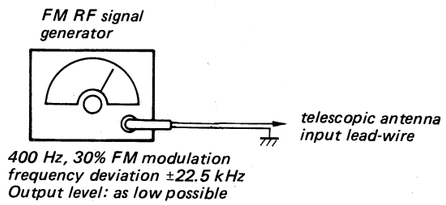
MW Section

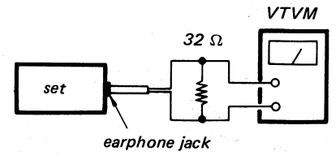


SW Section

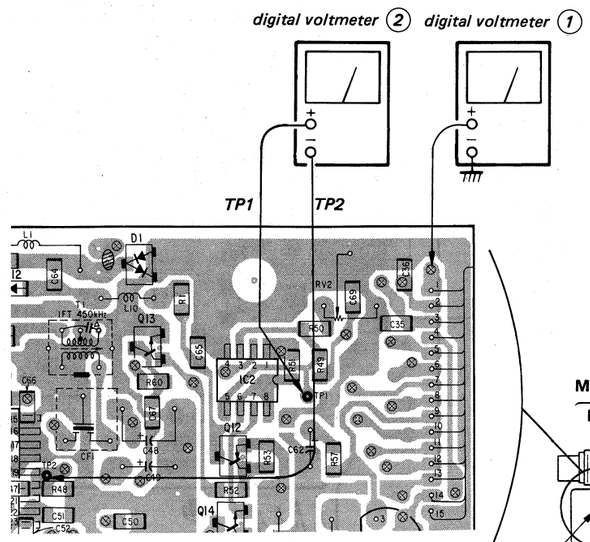


FM Section


FM RF signal generator
telescopic antenna input lead-wire
400 Hz, 30% FM modulation
frequency deviation ±22.5 kHz
Output level: as low possible



- Repeat the procedures in each adjustment several times, and the tracking adjustments should be finally done by the trimmer capacitors.



AM IF ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
T1	450 kHz

MW FREQUENCY COVERAGE ADJUSTMENT		
Adjustment Part	Frequency Display	Reading on Digital Voltmeter ①.
L6	1,602 kHz	8 ±0.1 V

Note: Not use the AM rf signal generator in this adjustment.

MW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L3	621 kHz
CT2	1,395 kHz

SW FREQUENCY COVERAGE ADJUSTMENT		
Adjustment Part	Frequency Display	Reading on Digital Voltmeter ①.
L5	6.4 MHz	8 ±0.1 V

Note: Not use the AM rf signal generator in this adjustment.

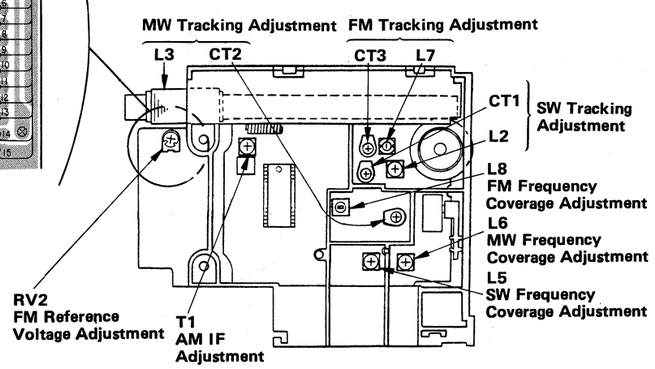
SW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L2	5,800 kHz
CT1	6,400 kHz

FM FREQUENCY COVERAGE ADJUSTMENT		
Adjustment Part	Frequency Display	Reading on Digital Voltmeter ①.
L8	108 MHz	10 ±0.1 V

Note: Not use the FM rf signal generator in this adjustment.

FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L7	87.5 MHz
CT3	108 MHz

FM REFERENCE VOLTAGE ADJUSTMENT		
FM rf signal generator	Modulation	no modulation
	Carrier frequency	98.025 MHz
	Output level	0.32 mV (54 dB)
Adjustment Part	Frequency Display	Reading on Digital Voltmeter ②.
RV2	98.00 MHz	0 V



SECTION 4
DIAGRAMS

4-1. PRINTED WIRING BOARDS

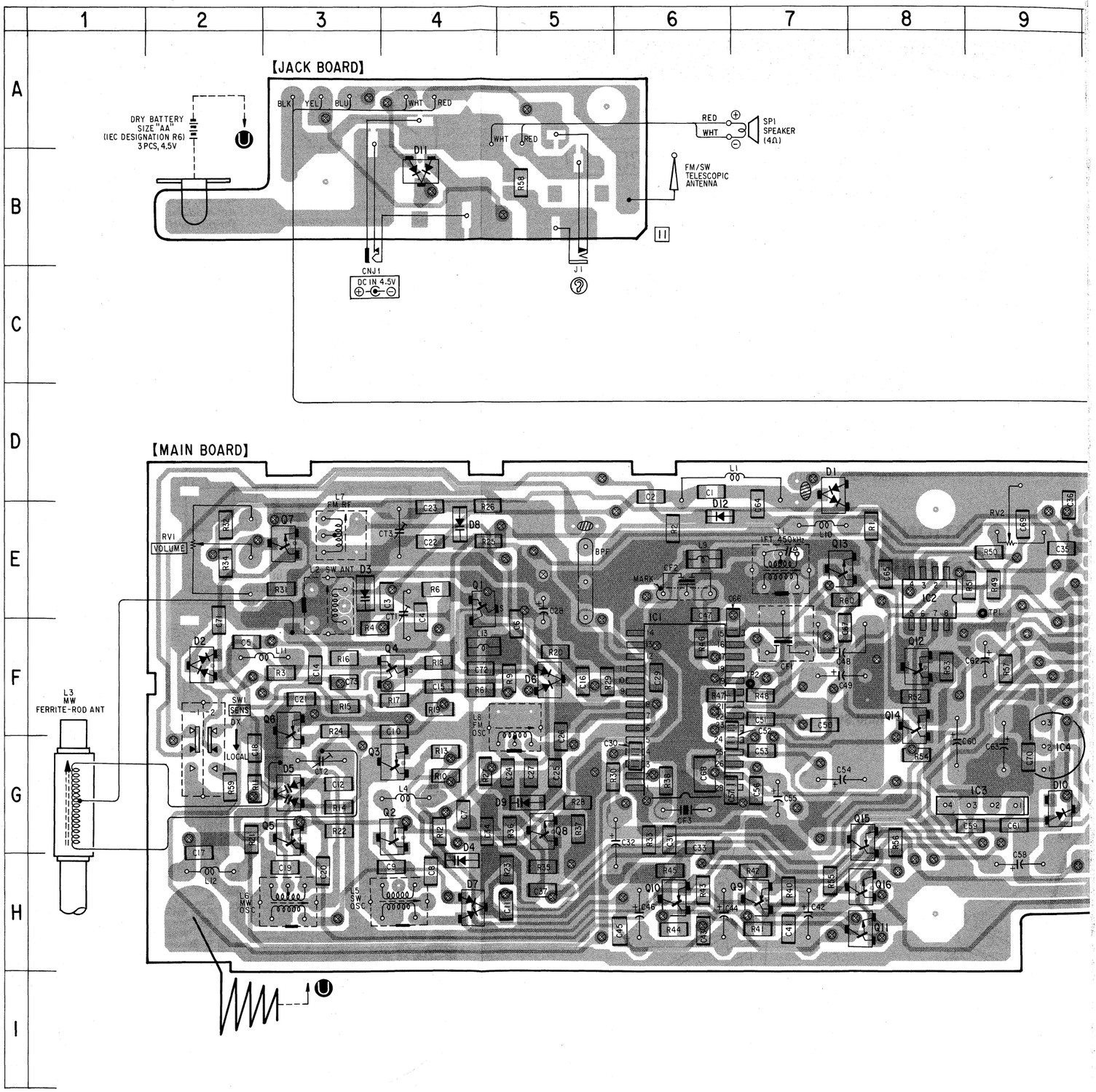
● See page 12 for Semiconductor Lead Layouts.

● Semiconductor Location

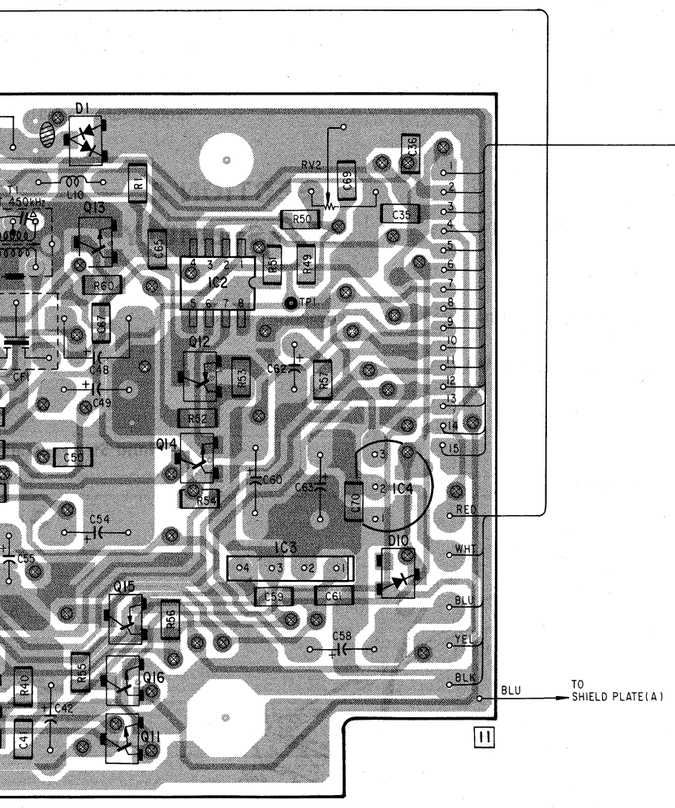
Ref. No.	Location
D1	D-7
D2	F-2
D3	E-3
D4	M-4
D5	G-3
D6	F-5
D7	H-4
D8	E-4
D9	G-5
D10	G-9
D11	B-4
D12	E-6
D100	A-12
D103	B-14
D104	C-14
D106	C-17
D107	C-17
IC1	F-6
IC2	E-8
IC3	G-9
IC4	G-9
IC100	B-15
IC101	B-17
Q1	E-4
Q2	G-4
Q3	G-3
Q4	F-4
Q5	G-3
Q6	F-3
Q7	E-3
Q8	G-5
Q9	H-7
Q10	H-6
Q11	H-8
Q12	F-8
Q13	E-7
Q14	F-8
Q15	G-8
Q16	H-8
Q100	B-14
Q101	C-14
Q102	B-15
Q103	B-15
Q104	B-15

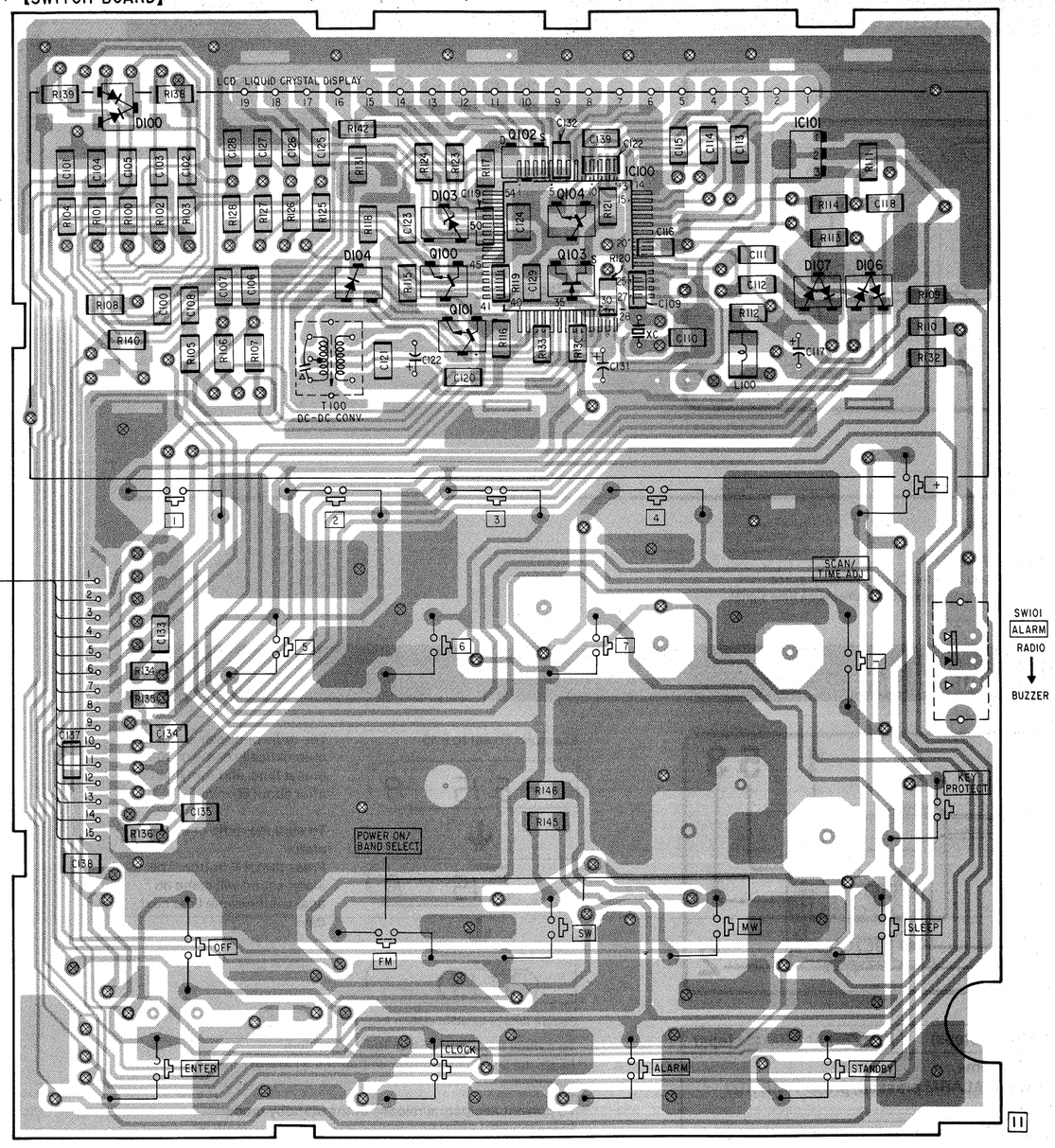
Note:

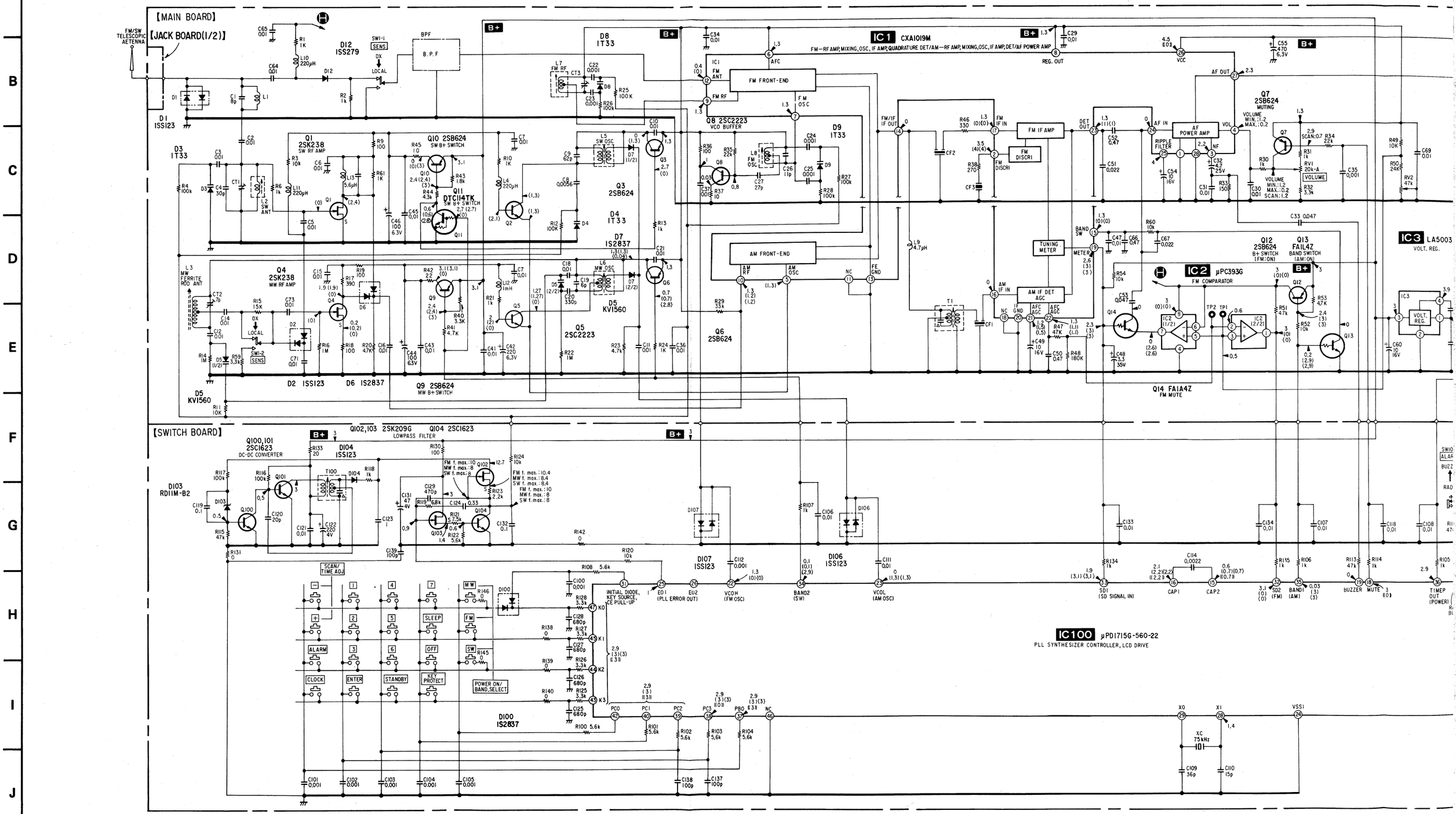
- ○—— : parts extracted from the component side.
- ●—— : parts extracted from the conductor side.
- ⊗ : Through hole.
- ▒▒ : Pattern on the side which is seen.
- ▒▒ : Pattern of the rear side.
- □ : Chip components extracted from the rear side.

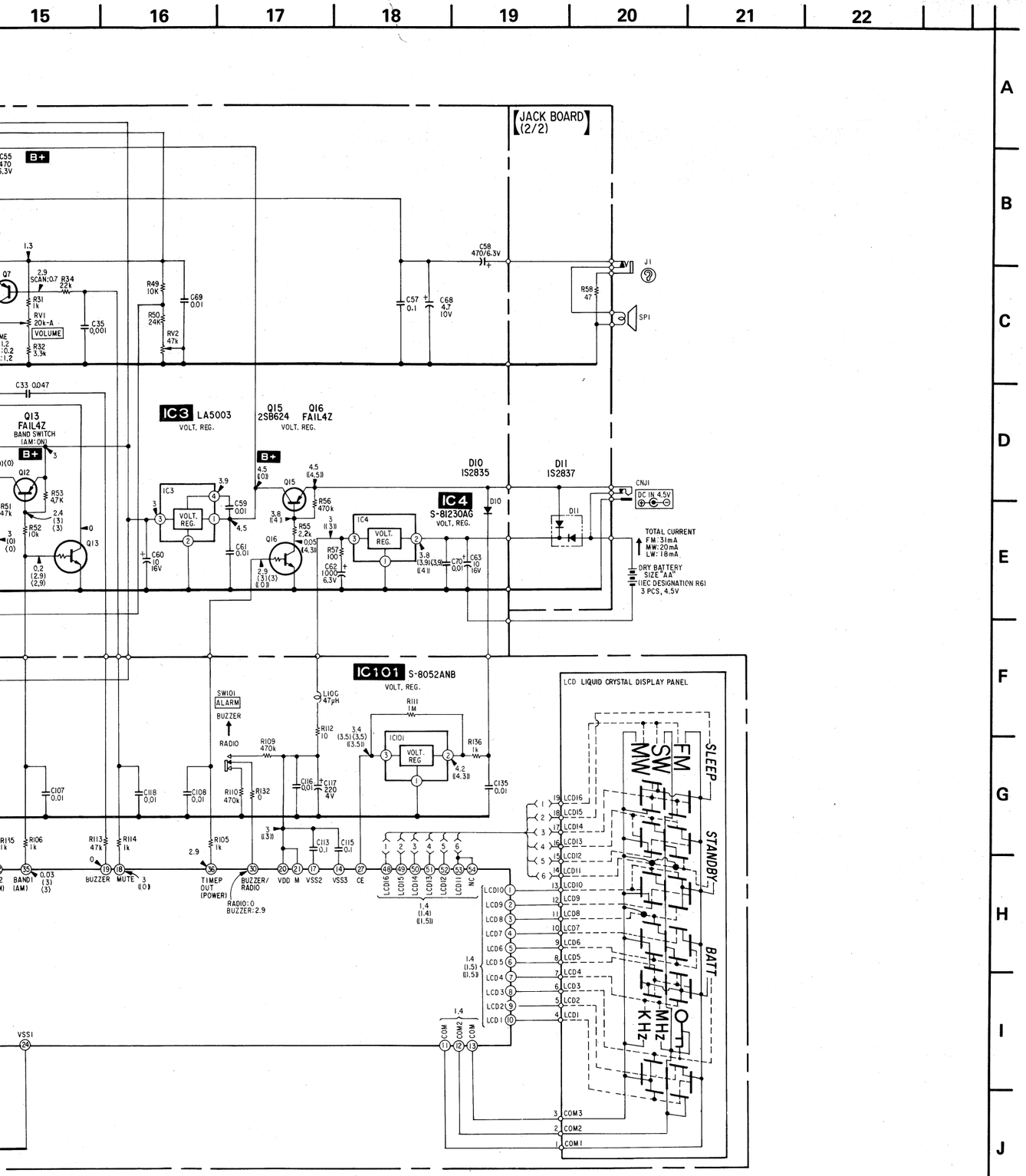


【SWITCH BOARD】






【MAIN BOARD】
【JACK BOARD(1/2)】
FM/SW TELESCOPIC AETENNA
D1 ISS123
D12 ISS279
SW1-1 SENS
DX LOCAL
BPF
B.P.F
B+
D8 1T33
IC1 CXA1019M
FM—RF AMP, MIXING, OSC, IF AMP, QUADRATURE DET/AM—RF AMP, MIXING, OSC, IF AMP, DET/AF POWER AMP
REG. OUT
VCC
FM FRONT-END
FM RF
FM ANT
FM OSC
AFC
Q8 2SC2223 VCO BUFFER
FM/IF IF OUT
FM IF IN
FM IF AMP
FM DISCRI
DET OUT
AF IN
AF POWER AMP
RIPPLE FILTER
VOL
AF OUT
Q7 2SB624 MUTING
VOLUME MIN.:1.2 MAX.:0.2
VOLUME
AM FRONT-END
AM RF
AM OSC
NC
FE GND
L9 4.7μH
T1
TUNING METER
BAND SW
METER
AM IF IN
AM IF DET AGC
IC2 μPC3936 FM COMPARATOR
B+ SWITCH (FM:ON)
Q12 2SB624
Q13 FA1L4Z BAND SWITCH (AM:ON)
IC3 LA5003 VOLT. REG.
Q14 FA1A4Z FM MUTE
Q1 2SK238 SW RF AMP
Q10 2SB624 SW B+ SWITCH
Q11 DTC114TK SW B+ SWITCH
Q3 2SB624
D4 1T33
D7 1S2837
D5 KV1560
Q4 2SK238 MW RF AMP
Q9 2SB624 MW B+ SWITCH
D6 1S2837
D2 1SS123
Q5 2SC2223
Q6 2SB624
L3 MW FERRITE ROD ANT
D3 1T33
【SWITCH BOARD】
Q100,101 2SC1623 DC-DC CONVERTER
Q102,103 2SK209G LOWPASS FILTER
Q104 2SC1623
D104 1SS123
D103 RD11M-B2
SCAN/ TIME ADJ
SLEEP
FM
ALARM
OFF
SW
CLOCK
ENTER
STANDBY
KEY PROTECT
POWER ON/ BAND SELECT
D100 1S2837
D107 1SS123
D106 1SS123
IC100 μPD1715G-560-22
PLL SYNTHESIZER CONTROLLER, LCD DRIVE
INITIAL DIODE, KEY SOURCE, CE PULL-UP
EO1 (PLL ERROR OUT)
EO2
VCOH (FM OSC)
BAND2 (SW)
VCOL (AM OSC)
SD1 (SD SIGNAL IN)
CAP1
CAP2
SD2 (FM)
BAND1 (AM)
BUZZER
MUTE
TIMEP OUT (POWER)
XC 75kHz



Note:

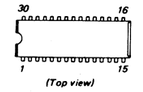
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- △ : internal component.
- ▭ : adjustment for repair.
- Power voltage is dc 4.5 V and fed with regulated dc power supply from external power voltage jack.

  no mark: FM mode
  ( ): MW mode
  < >: SW mode
  (( )): OFF mode
- Voltages are taken with a VOM (50 kΩ/V). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM
- Switch

Ref. No.	Switch	Position
SW1	DX/LOCAL	DX
SW101	ALARM	RADIO

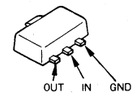
• Semiconductor Lead Layouts

CXA1019M

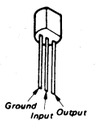


LA5003

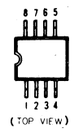
S-8052ANB-NE-S



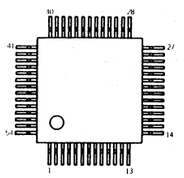
S-81230AG



μPC393G2



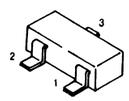
μPD1715G-565-22



2SB624-BV4
2SC1623
2SC2223-F13
DTC114TK
FA1L4Z-L62
FA1L4Z-L68

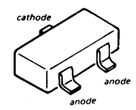
2SK209G

2SK238-K16

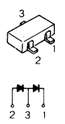


1. Drain
2. Gate
3. Source

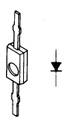
1S2837
KV1560



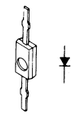
1SS123



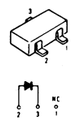
1SS279

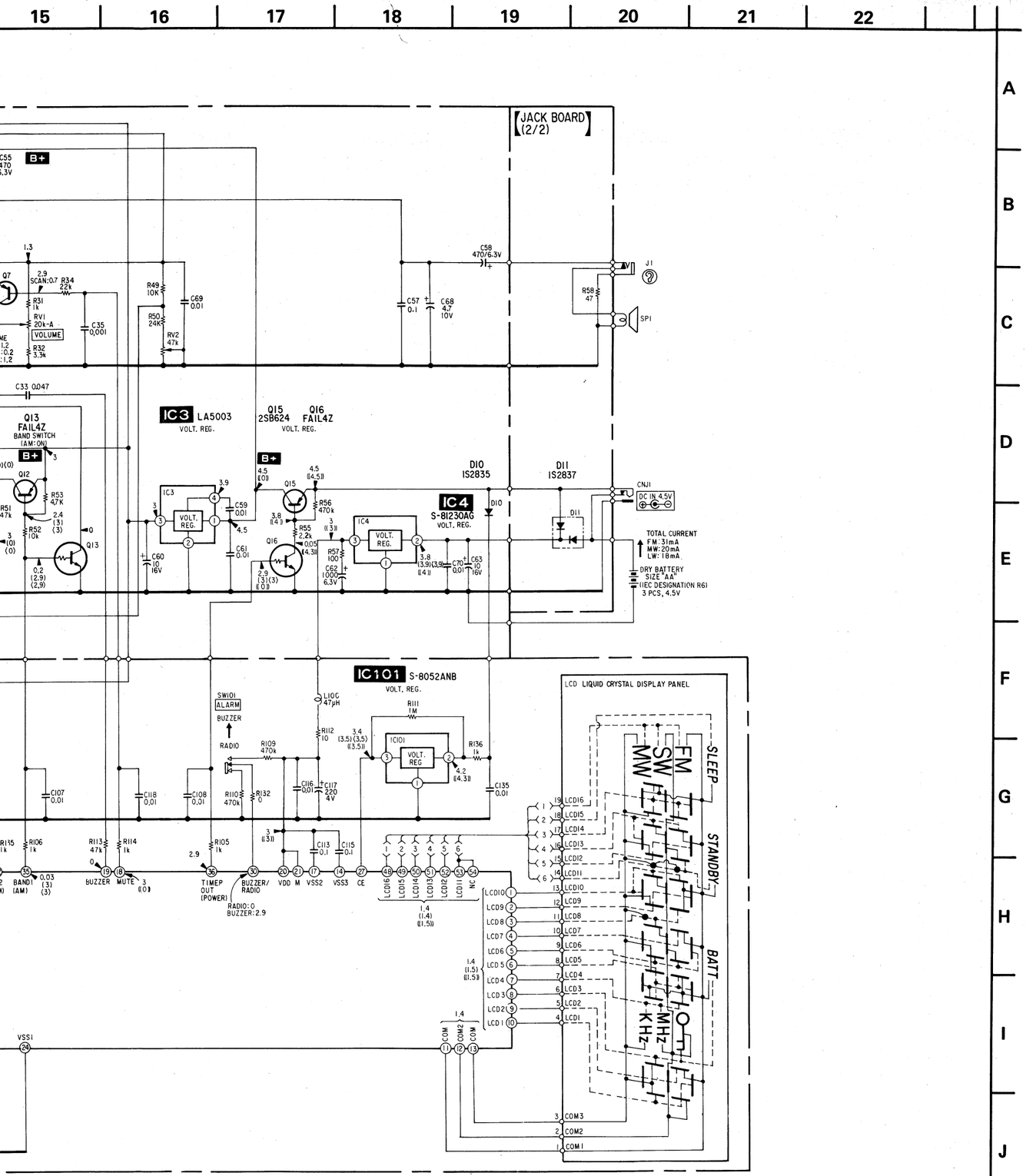


1T32-2
1T33



RD11M-B2





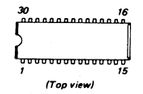
Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- △ : internal component.
- ▭ : adjustment for repair.
- Power voltage is dc 4.5 V and fed with regulated dc power supply from external power voltage jack.
  no mark: FM mode
  ( ): MW mode
  < >: SW mode
  (( )): OFF mode
- Voltages are taken with a VOM (50 kΩ/V).
  Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM
- Switch

Ref. No.	Switch	Position
SW1	DX/LOCAL	DX
SW101	ALARM	RADIO

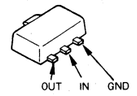
• Semiconductor Lead Layouts

CXA1019M

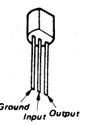


LA5003

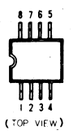
S-8052ANB-NE-S



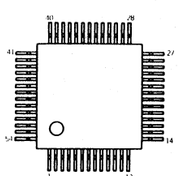
S-81230AG



μPC393G2



μPD1715G-565-22

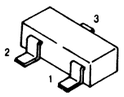


MARKING SIDE VIEW

2SB624-BV4
2SC1623
2SC2223-F13
DTC114TK
FA1L4Z-L62
FA1L4Z-L68

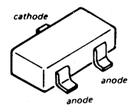
2SK209G

2SK238-K16

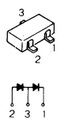


1. Drain
2. Gate
3. Source

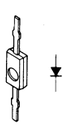
1S2837
KV1560



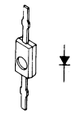
1SS123



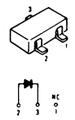
1SS279



1T32-2
1T33



RD11M-B2



4-3. μPD1715G-565 (IC100)

Pin No.	Symbol	Naming	Description	Active
1 | 10 48 | 53	LCD10 | LCD1 LCD16 | LCD11	LCD SEGMENT SIGNALS	• Segment signal output pins to LCD	–
11 | 13	COM3 | COM1	LCD COMMON SIGNAL	• Common signal output pin to LCD	–
14 15 16 17	VSS3 CAP2 CAP1 VSS2	CAPACITOR CONNECTION PIN FOR TABULAR	• Capacitor connection pins for tabular circuit to make LCD drive voltage	–
18	MUTE	MUTE PIN	• Mute signal output pin to mute noises encountered in the unlocked condition of the PLL and key-scan noises	Low
19	BUZZER	BUZZER OUTPUT PIN	• Output pin of standby alarm sound, range-out beep sound, and scan beep sound	–
20, 46	VDD	POWER SUPPLY INPUT PIN	• Power supply input pin for device • The power-on reset circuit of device starts to operate at the instance this pin receives a voltage of 0 (zero) to 2.0 VDC, and the program starts from the location 0 (zero)	–
21	M	CONTROL SIGNAL INPUT PIN FOR DIVIDER	• Determines the dividing ratio of the fixed-division prescalar. (Only when the VCOH pin is used in VCO input) • A 1/4 dividing ratio is made when this terminal is held at "High" and a 1/2 divider is made when held at "Low"	–
22	VCOH	FM LOCAL OSC SIGNAL INPUT PIN	• This pin inputs VCO signal when receiving FM bands	–
23	VCOL	AM LOCAL OSC SIGNAL INPUT PIN	• This pin inputs VCO signal when receiving AM bands	–
24	VSS1	GROUND PIN	• Ground pin of device	–
25, 26	EO	ERROR OUTPUT PIN	• Error output pin of the PLL	–
27	CE	VOLTAGE DECREASE DETECTION PIN	• Voltage decrease detection pin of the set • Becomes tuner off and clock mode in LOW level	–
28 29	Xi Xo	CRYSTAL OSCILLATOR CONNECTION PIN	• An external quartz-crystal oscillator connects to these pins to obtain 75 kHz signal generator	–
30	BUZZER/RADIO	BUZZER/RADIO SELECT SWITCH PIN	• Select switch of standby ON "High": BUZZER OUTPUT "Low": RADIO ON	Hi

Pin No.	Symbol	Naming	Description	Active
31	INITIAL DIODE, KEY SOURCE, AND CE PULL-UP PIN	INITIAL DIODE, KEY SOURCE, AND CE PULL-UP PIN	• Used as key source of initial diode. (VDD = "Low" → "High") • Output "High" for 125–250 msec to prevent voltage of CE from decreasing during TIMER OUT output ("Low" → "High").	Hi
32 33	SD2 SD1	SD SIGNAL INPUT PIN	• Input pin of SD (station detection) signal from the tuner	Low
34 35	BAND2 BAND1	BAND DATA OUTPUT PIN	• These pins output band information to the tuner.	Hi
36	TIMER OUT	TIMER-OUT (POWER) OUTPUT PIN	• Timer-out (power) output pin of the tuner • Outputs "High" during BUZZER output.	Hi
37 38 39 40 42	PB0 PC3 PC2 PC1 PC0	MOMENTARY KEY SOURCE OUTPUT PIN	• Key source output pin of momentary key	Hi
43 44 45 47	K3 K2 K1 K0	KEY RETURN SIGNAL INPUT PIN	• Key return signal input pin of momentary key and diode switch	Hi
41	NC	NO CONNECTION PIN	• This is a free terminal and is not connected to the internal circuits, and this terminal can be used as a junction land.	

Receiving band	BAND1	BAND2
MW	H	L
SW	H	H
FM	L	L
Tuner OFF	L	L

- **Key Matrix**

Matrix table of monentary key and diode sw.

Input / Output	(43) K3	(44) K2	(45) K1	(47) K0	
(37) PB0	CLOCK	ALARM	UP	DOWN	momentary key
(38) PC3	ENTER	3	2	1	
(39) PC2	STAND-BY	6	5	4	
(40) PC1	KEY PROTECT	OFF	SLEEP	7	
(42) PC0	————	SW	FM	MW	
(31) PA2	A3	A2	A1	A0	diode SW

Slide SW (SW100)

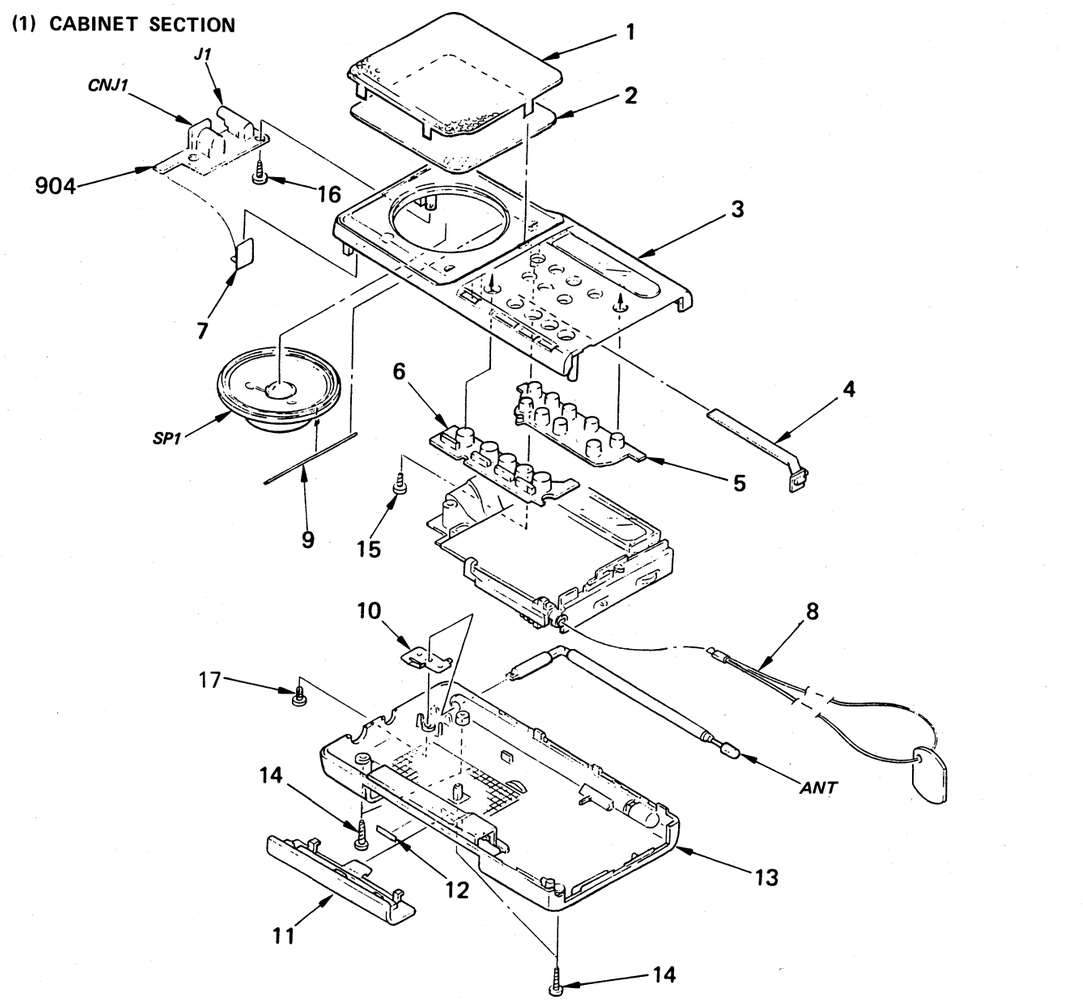
SW Position / Input	VDD	GND
30 PA3	BUZZER	RADIO

SECTION 5
EXPLODED VIEWS

NOTE:

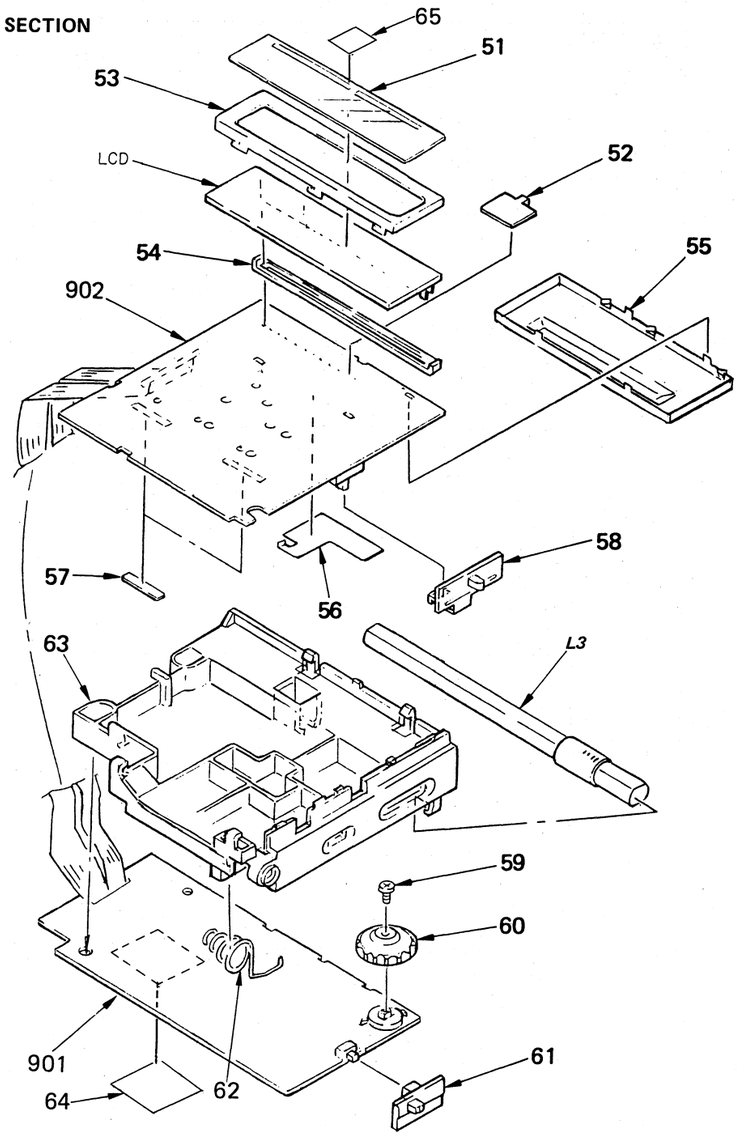
- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts
  Example:
  (RED) . . . KNOB, BALANCE (WHITE)
  ↑ Cabinet's Color ↑ Parts Color

(1) CABINET SECTION



No.	Part No.	Description	Remarks
1	3-899-913-01	NET, SPEAKER	
2	3-899-914-01	SHEET, SPEAKER	
3	X-3896-637-1	CABINET ASSY, FRONT	
4	3-899-909-01	KNOB (A)	
5	1-571-351-11	SWITCH, RUBBER KEY (PRESET)	
6	1-571-454-11	SWITCH, RUBBER KEY (BAND SELECT)	
7	3-899-919-01	TERMINAL (PLUS), BATTERY	
8	3-899-926-01	STRAP, HAND	
9	3-899-923-01	SPRING	
10	*3-899-922-01	PLATE, CONTACT, ANTENNA	
11	3-899-907-01	LID, BATTERY CASE	
12	3-703-264-11	LABEL (B), SERIAL NO	
13	3-899-924-41	CABINET (REAR)	
14	7-685-549-14	SCREW +BTP 3X14 TYPE2 N-S	
15	7-685-647-79	SCREW +P 3X10 TYPE2 NON-SLIT	
16	7-685-646-79	SCREW +P 3X8 TYPE2 NON-SLIT	
17	7-682-148-15	SCREW +P 3X8	
904	*1-627-840-11	PC BOARD, JACK	
ANT	1-501-407-11	ANTENNA, TELESCOPIC	
CNJ1	1-507-954-11	JACK, EXTERNAL POWER	
J1	1-563-836-21	JACK	
SP1	1-503-937-11	SPEAKER	

(2) CHASSIS SECTION



No.	Part No.	Description	Remarks
51	*3-899-943-01	SHEET, CONDUCTIVE, TRANSPARENT	
52	*3-899-934-01	FOIL (G), SHIELD	
53	*3-899-915-01	PLATE (A), SHIELD	
54	*3-899-920-01	SPACER (A)	
55	*3-899-916-01	PLATE (B), SHIELD	
56	*3-899-917-01	PLATE (C), SHIELD	
57	*3-899-921-01	SPACER (B)	
58	3-899-911-01	KNOB (C) (RADIO/BUZZER)	
59	3-880-990-00	SCREW (1.7X3), FLAT, (+) SPECIAL	
60	3-899-910-01	KNOB (B) (VR)	
61	3-899-912-01	KNOB (D) (DX/LOCAL)	
62	3-899-918-01	SPRING (MINUS)	
63	*3-899-908-01	CHASSIS	
64	*3-899-950-01	PLATE (H), SHIELD	
65	3-831-441-XX	SHEET (1)	
901	A-3660-795-A	MOUNTED PCB, MAIN	
902	A-3681-246-A	MOUNTED PCB, SWITCH	
L3	1-402-363-11	ANTENNA, FERRITE-ROD	
LCD	1-808-519-11	DISPLAY PANEL, LIQUID CRTSTAL	

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA..., UPC...: μPC, UPD...: μPD...

Ref.No.	Part No.	Description		
901	A-3660-795-A	MOUNTED PCB, MAIN		
902	A-3681-246-A	MOUNTED PCB, SWITCH		
904	*1-627-840-11	PC BOARD, JACK		
ANT	1-501-407-11	ANTENNA, TELESCOPIC		
BPF	1-235-171-00	FILTER, BAND PASS		
C1	1-163-091-00	CERAMIC CHIP 8PF	0.25PF	50V
C2	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C3	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C4	1-163-104-00	CERAMIC CHIP 30PF	5%	50V
C5	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C6	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C7	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C8	1-163-018-00	CERAMIC CHIP 0.0056MF	10%	50V
C9	1-163-112-00	CERAMIC CHIP 62PF	5%	50V
C10	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C11	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C12	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C14	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C15	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C16	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C17	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C18	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C19	1-163-089-00	CERAMIC CHIP 6PF	0.25PF	50V
C20	1-163-129-00	CERAMIC CHIP 330PF	5%	50V
C21	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C22	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V
C23	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V
C24	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V
C25	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V
C26	1-163-094-00	CERAMIC CHIP 11PF	5%	50V
C27	1-163-103-00	CERAMIC CHIP 27PF	5%	50V
C28	1-124-229-00	ELECT 33MF	20%	6.3V
C29	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C30	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C31	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C32	1-126-094-11	ELECT 4.7MF	20%	25V
C33	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V
C34	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C35	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V
C36	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C37	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C41	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C42	1-126-176-11	ELECT 220MF	20%	6.3V
C43	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V

Ref.No.	Part No.	Description		
C44	1-123-661-00	ELECT 100MF	20%	6.3V
C45	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C46	1-123-661-00	ELECT 100MF	20%	6.3V
C47	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C48	1-126-162-11	ELECT 3.3MF	20%	35V
C49	1-126-157-11	ELECT 10MF	20%	16V
C50	1-164-005-11	CERAMIC CHIP 0.47MF		25V
C51	1-163-037-11	CERAMIC CHIP 0.022MF	10%	25V
C52	1-164-005-11	CERAMIC CHIP 0.47MF		25V
C53	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V
C54	1-126-157-11	ELECT 10MF	20%	16V
C55	1-124-472-11	ELECT 470MF	20%	6.3V
C56	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C57	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C58	1-124-472-11	ELECT 470MF	20%	6.3V
C59	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C60	1-126-157-11	ELECT 10MF	20%	16V
C61	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C62	1-124-471-00	ELECT 1000MF	20%	6.3V
C63	1-126-157-11	ELECT 10MF	20%	16V
C64	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C65	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C66	1-164-005-11	CERAMIC CHIP 0.47MF		25V
C67	1-163-037-11	CERAMIC CHIP 0.022MF	10%	25V
C68	1-135-096-21	TANTAL. CHIP 4.7MF	20%	10V
C69	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C70	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C71	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C72	1-163-123-00	CERAMIC CHIP 180PF	5%	50V
C73	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C100	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C101	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C102	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V
C103	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C104	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V
C105	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C106	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C107	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C108	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C109	1-163-106-00	CERAMIC CHIP 36PF	5%	50V
C110	1-163-097-00	CERAMIC CHIP 15PF	5%	50V
C111	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C112	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V
C113	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C114	1-163-013-00	CERAMIC CHIP 0.0022MF	10%	50V

Ref.No.	Part No.	Description			
C115	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C116	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C117	1-124-434-00	ELECT	220MF	20%	4V
C118	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C119	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C120	1-163-100-00	CERAMIC CHIP	20PF	5%	50V
C121	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C122	1-124-434-00	ELECT	220MF	20%	4V
C123	1-162-638-11	CERAMIC CHIP	1MF		16V
C124	1-164-006-11	CERAMIC CHIP	0.33MF	10%	16V
C125	1-163-137-00	CERAMIC CHIP	680PF	10%	50V
C126	1-163-137-00	CERAMIC CHIP	680PF	10%	50V
C127	1-163-137-00	CERAMIC CHIP	680PF	10%	50V
C128	1-163-137-00	CERAMIC CHIP	680PF	10%	50V
C129	1-163-133-00	CERAMIC CHIP	470PF	10%	50V
C131	1-124-432-00	ELECT	47MF	20%	4V
C132	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C133	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C134	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C135	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C137	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C138	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C139	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
CF1	1-567-919-11	FILTER, CERAMIC			
CF2	1-567-685-81	FILTER, CERAMIC			
CF3	1-567-685-81	FILTER, CERAMIC			
CNJ1	1-507-954-11	JACK, EXTERNAL POWER (DC IN 4.5V)			
CT1	1-141-229-00	CAP, TRIMMER			
CT2	1-141-229-00	CAP, TRIMMER			
CT3	1-141-229-00	CAP, TRIMMER			
D1	8-719-103-23	DIODE 1SS123			
D2	8-719-103-23	DIODE 1SS123			
D3	8-719-300-00	DIODE 1T33			
D4	8-719-300-00	DIODE 1T33			
D5	8-719-951-05	DIODE KV1560			
D6	8-719-100-05	DIODE 1S2837			
D7	8-719-100-05	DIODE 1S2837			
D8	8-719-300-00	DIODE 1T33			
D9	8-719-300-00	DIODE 1T33			
D10	8-719-104-26	DIODE 1S2837			
D11	8-719-104-26	DIODE 1S2837			
D12	8-719-123-79	DIODE 1SS279			
D100	8-719-100-05	DIODE 1S2837			
D103	8-719-106-62	DIODE RD11M-B2			
D104	8-719-101-23	DIODE 1SS123			
D106	8-719-101-23	DIODE 1SS123			
D107	8-719-101-23	DIODE 1SS123			
IC1	8-752-030-15	IC CXA1019M			
IC2	8-759-100-95	IC UPC393G2			
IC3	8-759-800-27	IC LA5003			
IC4	8-759-937-61	IC S-81230AG			
IC100	8-759-144-01	IC UPD1715G-565-22			
IC101	8-759-945-21	IC S-8052ANB-NE-S			
J1	1-563-836-21	JACK (EARPHONE)			
L1	1-422-348-11	COIL, AIR-CORE			
L2	1-402-397-11	COIL (SW ANT)			
L3	1-402-363-11	ANTENNA, FERRITE-ROD			

Ref.No.	Part No.	Description			
L4	1-410-336-11	INDUCTOR	220UH		
L5	1-406-306-11	COIL (SW OSC)			
L6	1-406-269-11	COIL (MW OSC)			
L7	1-459-838-11	COIL (WITH CORE), FM RF			
L8	1-459-837-11	COIL (WITH CORE), FM OSC			
L9	1-410-200-31	INDUCTOR CHIP	4.7UH		
L10	1-410-336-11	INDUCTOR	220UH		
L11	1-410-336-11	INDUCTOR	220UH		
L12	1-408-104-00	INDUCTOR	1MMH		
L13	1-410-201-11	INDUCTOR CHIP	5.6UH		
L100	1-410-212-51	INDUCTOR CHIP	47UH		
LCD	1-808-519-11	DISPLAY PANEL, LIQUID CRTSTAL			
Q1	8-729-123-86	TRANSISTOR 2SK238-K16			
Q2	8-729-102-07	TRANSISTOR 2SC2223-F13			
Q3	8-729-162-44	TRANSISTOR 2SB624-BV4			
Q4	8-729-123-86	TRANSISTOR 2SK238-K16			
Q5	8-729-102-07	TRANSISTOR 2SC2223-F13			
Q6	8-729-162-44	TRANSISTOR 2SB624-BV4			
Q7	8-729-162-44	TRANSISTOR 2SB624-BV4			
Q8	8-729-102-07	TRANSISTOR 2SC2223-F13			
Q9	8-729-162-44	TRANSISTOR 2SB624-BV4			
Q10	8-729-162-44	TRANSISTOR 2SB624-BV4			
Q11	8-729-902-99	TRANSISTOR DTC114TK			
Q12	8-729-162-44	TRANSISTOR 2SB624-BV4			
Q13	8-729-114-35	TRANSISTOR FA1L4Z-L62			
Q14	8-729-113-40	TRANSISTOR FA1A4Z-L68			
Q15	8-729-162-44	TRANSISTOR 2SB624-BV4			
Q16	8-729-114-35	TRANSISTOR FA1L4Z-L62			
Q100	8-729-100-66	TRANSISTOR 2SC1623			
Q101	8-729-100-66	TRANSISTOR 2SC1623			
Q102	8-729-220-93	TRANSISTOR 2SK209G			
Q103	8-729-220-93	TRANSISTOR 2SK209G			
Q104	8-729-100-66	TRANSISTOR 2SC1623			
R1	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R2	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R3	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R4	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R6	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R9	1-216-025-00	METAL GLAZE	100	5%	1/10W
R10	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R11	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R12	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R13	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R14	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R15	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R16	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R17	1-216-039-00	METAL GLAZE	390	5%	1/10W
R18	1-216-025-00	METAL GLAZE	100	5%	1/10W
R19	1-216-025-00	METAL GLAZE	100	5%	1/10W
R20	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R21	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R22	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R23	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R24	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R25	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R26	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R27	1-216-097-00	METAL GLAZE	100K	5%	1/10W

Ref.No.	Part No.	Description			
R28	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R29	1-216-085-00	METAL GLAZE	33K	5%	1/8W
R30	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R31	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R32	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R33	1-216-029-00	METAL GLAZE	150	5%	1/10W
R34	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R35	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R36	1-216-025-00	METAL GLAZE	100	5%	1/10W
R37	1-216-001-00	METAL GLAZE	10	5%	1/10W
R38	1-216-035-00	METAL GLAZE	270	5%	1/10W
R40	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R41	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R42	1-216-009-00	METAL GLAZE	22	5%	1/10W
R43	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W
R44	1-216-064-00	METAL GLAZE	4.3K	5%	1/10W
R45	1-216-001-00	METAL GLAZE	10	5%	1/10W
R46	1-216-037-00	METAL GLAZE	330	5%	1/10W
R47	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R48	1-216-103-00	METAL GLAZE	180K	5%	1/10W
R49	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R50	1-216-082-00	METAL GLAZE	24K	5%	1/10W
R51	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R52	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R53	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R54	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R55	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R56	1-216-113-00	METAL GLAZE	470K	5%	1/10W
R57	1-216-025-00	METAL GLAZE	100	5%	1/10W
R58	1-216-017-00	METAL GLAZE	47	5%	1/10W
R59	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R60	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R61	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R100	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R101	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R102	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R103	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R104	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R105	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R106	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R107	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R108	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R109	1-216-113-00	METAL GLAZE	470K	5%	1/10W
R110	1-216-113-00	METAL GLAZE	470K	5%	1/10W
R111	1-216-121-00	METAL GLAZE	1M	5%	1/10W

Ref.No.	Part No.	Description			
R112	1-216-001-00	METAL GLAZE	10	5%	1/10W
R113	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R114	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R115	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R116	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R117	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R118	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R119	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W
R120	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R121	1-216-070-00	METAL GLAZE	7.5K	5%	1/10W
R122	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R123	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R124	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R125	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R126	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R127	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R128	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R130	1-216-025-00	METAL GLAZE	100	5%	1/10W
R131	1-216-295-00	METAL GLAZE	0	5%	1/10W
R132	1-216-295-00	METAL GLAZE	0	5%	1/10W
R133	1-216-008-11	METAL GLAZE	20	5%	1/10W
R134	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R135	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R136	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R138	1-216-295-00	METAL GLAZE	0	5%	1/10W
R139	1-216-295-00	METAL GLAZE	0	5%	1/10W
R140	1-216-295-00	METAL GLAZE	0	5%	1/10W
R142	1-216-295-00	METAL GLAZE	0	5%	1/10W
R145	1-216-295-00	METAL GLAZE	0	5%	1/10W
R146	1-216-295-00	METAL GLAZE	0	5%	1/10W

RV1	1-238-107-11	RES, VAR, CARBON 20K
RV2	1-228-996-00	RES, ADJ, CARBON 47K
SP1	1-503-937-11	SPEAKER
SW1	1-554-123-00	SWITCH, SLIDE (SENS)
SW101	1-570-331-11	SWITCH, SLIDE (ALARM)
T1	1-404-789-11	TRANSFORMER, IF
T100	1-449-138-11	TRANSFORMER, DC-DC CONVERTER
XC	1-577-028-11	VIBRATOR, CRYSTAL (75kHz)

ACCESSORY & PACKING MATERIAL

1-504-059-11	MAGNETIC EARPHONE(ME-20H)
3-786-414-11	MANUAL, INSTRUCTION
*3-896-699-01	CUSHION
3-898-361-01	SHEET, PROTECTION
3-899-948-01	INDIVIDUAL CARTON